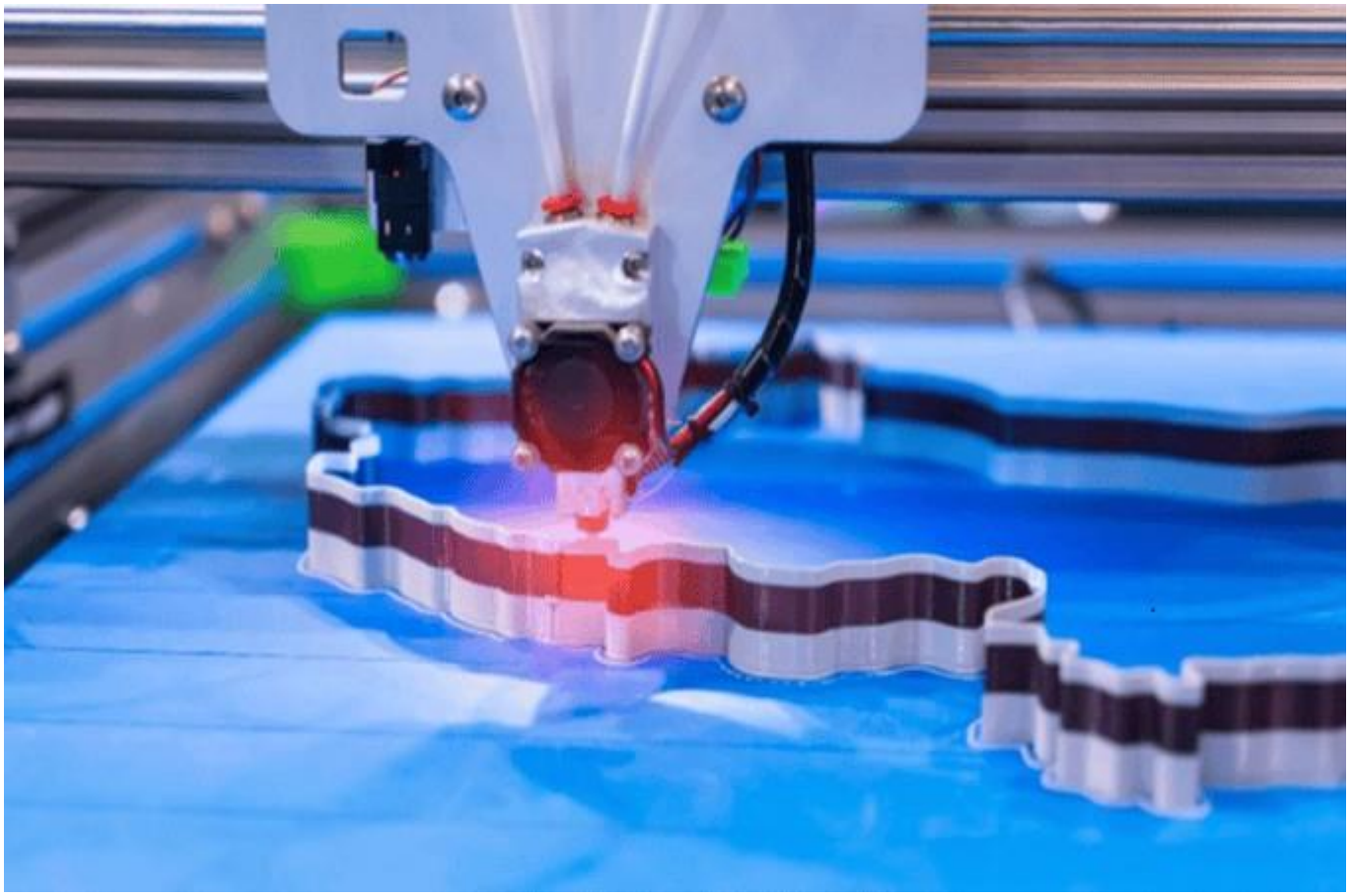
सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

Qualification Pack



Additive Process Engineer

QP Code: CSC/Q1002

Version: 1.0

NSQF Level: 6

Capital Goods & Strategic Skill Council || 1st Floor, L-29, Outer Circle, Connaught Place
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Qualification Pack

CSC/Q1002: Additive Process Engineer

Brief Job Description

An Additive Process Engineer is responsible for oversee the implementation and optimization of additive manufacturing processes within the production environment.

Personal Attributes

The person should be result oriented with good technical and analytical skills, should have Excellent Interpersonal Skills, communication and presentation skills and a good team player. They should have ability to manage projects, prioritizing of work and mentoring the budding engineers.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. CSC/N0482: Develop and implement Direct Hybrid Additive Manufacturing (DHAM) plans for Complex Prototype Development.
2. CSC/N0481: Designing parts optimised for the additive Process
3. CSC/N0533: Set up and optimize additive manufacturing Processes.
4. CSC/N1339: Collaboratively coordinate with the team
5. DGT/VSQ/N0102: Employability Skills (60 Hours)
6. CSC/N0505: Follow health, safety and environment guidelines at workplace

Qualification Pack (QP) Parameters

Sector	Capital Goods
Sub-Sector	Electrical and Power Machinery, Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Ship Building & Repair, Homeland Security, Smart Manufacturing
Occupation	Material Preparation, Material Preparation
Country	India
NSQF Level	6

Credits	17
Aligned to NCO/ISCO/ISIC Code	2144.0401
Minimum Educational Qualification & Experience	Diploma (Mechanical/Automobile/Electrical/Electronics) with 3 Years of experience relevant OR 10th Class with 3 Years of experience relevant OR B.E./B.Tech (Mechanical/Automobile/Electrical/Electronics) with 1 Year of experience relevant OR M.Tech (Mechanical/Automobile/Electrical/Electronics) OR Certificate-NSQF (level 5.5) with 1.5 years of experience relevant
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	21 Years
Last Reviewed On	NA
Next Review Date	01/10/2030
NSQC Approval Date	01/10/2025
Version	1.0
Reference code on NQR	QG-5.5-CG-02048-2024-V1-CGSC
NQR Version	1

CSC/N0482: Develop and implement Direct Hybrid Additive Manufacturing (DHAM) plans for Complex Prototype Development.

Description

This unit covers the competencies required to develop, plan, and implement Direct Hybrid Additive Manufacturing (DHAM) processes for complex prototype development. It includes understanding design intent, selecting materials and parameters, integrating additive and subtractive processes, executing hybrid operations, and validating final prototypes with quality and safety compliance.

Scope

The scope covers the following :

- The individual is expected to:
- Interpret complex prototype requirements.
- Develop hybrid process flow integrating additive and subtractive manufacturing.
- Select suitable materials, machines, and parameters.
- Execute and optimize hybrid manufacturing operations.
- Validate prototype accuracy and performance.
- Maintain documentation and safety standards.

Elements and Performance Criteria

Analyze and interpret prototype requirements

To be competent, the user/individual on the job must be able to:

PC1. Review design specifications, geometry, and functional needs of the prototype.

PC2. Identify key features suitable for hybrid additive-subtractive manufacturing.

Plan DHAM process strategy

To be competent, the user/individual on the job must be able to:

PC3. Select the most suitable DHAM technique (e.g., DED + CNC, LMD + milling) based on prototype complexity.

PC4. Define sequence of additive and subtractive operations ensuring dimensional integrity.

PC5. Simulate hybrid process flow for geometry validation and distortion control.

Select materials, tools, and parameters

To be competent, the user/individual on the job must be able to:

PC6. Choose base and additive materials compatible for hybrid processing.

PC7. Determine suitable toolpath strategies, energy inputs, and deposition parameters.

PC8. Configure and calibrate DHAM machine for process readiness.

Implement DHAM process for prototype development

To be competent, the user/individual on the job must be able to:

PC9. Execute additive and subtractive steps as per the defined hybrid plan.

PC10. Monitor process parameters and make in-process adjustments to maintain quality.

Validate and document prototype outcomes

To be competent, the user/individual on the job must be able to:

PC11. Inspect finished prototype using 3D scanning/CMM for accuracy and surface finish.
PC12. Record process parameters, deviations, and corrective actions.
PC13. Ensure compliance with safety, quality, and environmental standards.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Standard operating procedures (SOPs) for DHAM.
KU2. Documentation and approval hierarchy in prototype projects.
KU3. Quality assurance, reporting, and traceability requirements.
KU4. Health, safety, and environmental norms in hybrid labs.
KU5. Principles and advantages of Direct Hybrid Additive Manufacturing.
KU6. Material compatibility and metallurgical bonding in hybrid processes.
KU7. CAD/CAM and simulation tools for DHAM planning (e.g., Siemens NX, PowerMill, Fusion 360).
KU8. Hybrid machine structure, axis control, and calibration.
KU9. Thermal management and stress control during deposition.
KU10. Machining strategies post additive deposition.
KU11. Metrology tools (CMM, laser scanner, surface roughness tester).
KU12. Troubleshooting defects (porosity, delamination, tool wear).
KU13. Sustainable and efficient resource use in DHAM operations.

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. Communicate effectively with designers, machine operators, and QA teams.
GS2. Apply geometrical and thermal calculations to plan operations.
GS3. Use CAD/CAM, DHAM simulation, and data logging software.
GS4. Identify causes of hybrid process errors and optimize solutions.
GS5. Work collaboratively in cross-functional prototype projects.
GS6. Follow machine safety, PPE norms, and quality control guidelines.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Analyze and interpret prototype requirements	5	10	-	5
PC1. Review design specifications, geometry, and functional needs of the prototype.	-	-	-	-
PC2. Identify key features suitable for hybrid additive-subtractive manufacturing.	-	-	-	-
Plan DHAM process strategy	5	10	-	5
PC3. Select the most suitable DHAM technique (e.g., DED + CNC, LMD + milling) based on prototype complexity.	-	-	-	-
PC4. Define sequence of additive and subtractive operations ensuring dimensional integrity.	-	-	-	-
PC5. Simulate hybrid process flow for geometry validation and distortion control.	-	-	-	-
Select materials, tools, and parameters	5	10	-	5
PC6. Choose base and additive materials compatible for hybrid processing.	-	-	-	-
PC7. Determine suitable toolpath strategies, energy inputs, and deposition parameters.	-	-	-	-
PC8. Configure and calibrate DHAM machine for process readiness.	-	-	-	-
Implement DHAM process for prototype development	5	10	-	5
PC9. Execute additive and subtractive steps as per the defined hybrid plan.	-	-	-	-
PC10. Monitor process parameters and make in-process adjustments to maintain quality.	-	-	-	-
Validate and document prototype outcomes	5	10	-	5
PC11. Inspect finished prototype using 3D scanning/CMM for accuracy and surface finish.	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. Record process parameters, deviations, and corrective actions.	-	-	-	-
PC13. Ensure compliance with safety, quality, and environmental standards.	-	-	-	-
NOS Total	**25**	**50**	**-**	**25**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N0482
NOS Name	Develop and implement Direct Hybrid Additive Manufacturing (DHAM) plans for Complex Prototype Development.
Sector	Capital Goods
Sub-Sector	
Occupation	Design, Design
NSQF Level	6
Credits	3
Version	1.0
Last Reviewed Date	01/10/2025
Next Review Date	01/10/2030
NSQC Clearance Date	01/10/2025

CSC/N0481: Designing parts optimised for the additive Process

Description

Introduction to Additive Process, Additive Process Principles & Material Selection, Design for Additive Manufacturing

Scope

The scope covers the following :

- Designing & optimisation of Manufacturing

Elements and Performance Criteria

Select appropriate materials based on the Requirements of the application.

To be competent, the user/individual on the job must be able to:

PC1. Identify the requirements of an Additive Process.

PC2. Evaluate the mechanical properties, thermal characteristics, and compatibility with the manufacturing process for the selected material

PC3. Select appropriate material to meet the overall needs of An Additive Process.

Optimizing designs for manufacturing and maximizing part performance

To be competent, the user/individual on the job must be able to:

PC4. Create designs that are optimized for the additive manufacturing process.

PC5. Utilize topology optimization software to generate designs with optimized material distribution, reducing material usage while maintaining or improving part performance.

PC6. Fine-tune the process parameters such as layer thickness, printing speed, and temperature to achieve the desired part properties and surface finish while minimizing defects.

Designing Parts by applying Design Principles.

To be competent, the user/individual on the job must be able to:

PC7. Design and optimize support structures to minimize material usage, reduce post-processing requirements, and prevent warping and distortion during printing.

PC8. Use software tools to optimize part geometry for additive manufacturing. Topology optimization aims to minimize material usage while maintaining structural integrity and functional requirements.

PC9. Employ generative design algorithms to explore a vast range of design possibilities based on user-defined constraints and objectives.

PC10. Prioritize functional requirements while designing parts, ensuring they meet performance specifications and operational needs.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organisation procedures for health, safety and security, individual role and responsibilities in this context

KU2. the organisation's emergency procedures for different emergency situations and the importance of following the same

KU3. the organisation's emergency procedures for different emergency situations and the importance of following the same

KU4. Material Properties: Familiarity with the properties and characteristics of different additive manufacturing materials is crucial for selecting the most suitable material for a given application. This includes knowledge of mechanical properties, thermal properties, chemical resistance, and bio compatibility.

KU5. Design Principles: Proficiency in fundamental engineering design principles such as structural analysis, material science, mechanical behavior, and geometric dimension and tolerance (GD&T) is necessary for creating functional and reliable parts.

KU6. Design for Additive Manufacturing (DfAM): Understanding the principles of DfAM is essential for designing parts that leverage the unique capabilities of additive manufacturing processes. This includes knowledge of design guidelines, topology optimization, generative design, and lattice structures

KU7. Computer-Aided Design (CAD): Proficiency in CAD software is essential for creating 3D models of parts and assemblies. Knowledge of advanced CAD features and techniques for designing for additive manufacturing, such as creating organic shapes and optimizing part orientation, is beneficial.

KU8. Topology Optimization Tools: Familiarity with topology optimization software tools enables engineers to generate lightweight and structurally efficient designs. Understanding how to interpret optimization results and integrate them into the design process is critical.

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read safety instructions/guidelines

GS2. modify work practices to improve them

GS3. work with supervisors/team members to carry out work related tasks

GS5. inform/report to concerned person in case of any problem

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Select appropriate materials based on the Requirements of the application.	15	15	-	10
PC1. Identify the requirements of an Additive Process.	-	-	-	-
PC2. Evaluate the mechanical properties, thermal characteristics, and compatibility with the manufacturing process for the selected material	-	-	-	-
PC3. Select appropriate material to meet the overall needs of An Additive Process.	-	-	-	-
Optimizing designs for manufacturing and maximizing part performance	10	10	-	10
PC4. Create designs that are optimized for the additive manufacturing process.	-	-	-	-
PC5. Utilize topology optimization software to generate designs with optimized material distribution, reducing material usage while maintaining or improving part performance.	-	-	-	-
PC6. Fine-tune the process parameters such as layer thickness, printing speed, and temperature to achieve the desired part properties and surface finish while minimizing defects.	-	-	-	-
Designing Parts by applying Design Principles.	10	10	-	10
PC7. Design and optimize support structures to minimize material usage, reduce post-processing requirements, and prevent warping and distortion during printing.	-	-	-	-
PC8. Use software tools to optimize part geometry for additive manufacturing. Topology optimization aims to minimize material usage while maintaining structural integrity and functional requirements.	-	-	-	-
PC9. Employ generative design algorithms to explore a vast range of design possibilities based on user-defined constraints and objectives.	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. Prioritize functional requirements while designing parts, ensuring they meet performance specifications and operational needs.	-	-	-	-
NOS Total	**35**	**35**	**-**	**30**

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N0481
NOS Name	Designing parts optimised for the additive Process
Sector	Capital Goods
Sub-Sector	
Occupation	Design, Design
NSQF Level	6
Credits	3
Version	1.0
Last Reviewed Date	01/10/2025
Next Review Date	01/10/2030
NSQC Clearance Date	01/10/2025

CSC/N0533: Set up and optimize additive manufacturing Processes.

Description

Additive Process setup & Development, Optimisation of Additive Manufacturing Process

Scope

The scope covers the following :

- Set Up & Optimisation Additive Manufacturing Process

Elements and Performance Criteria

Prepare for Additive Manufacturing Process Setup

To be competent, the user/individual on the job must be able to:

PC1. Identify job requirements, part geometry, and customer specifications from design/CAD files.

PC2. Select the appropriate additive manufacturing process based on material, resolution, and functional needs.

PC3. Verify availability and calibration of required tools, equipment, and consumables.

PC4. Check environmental and safety conditions of the work area, ensuring compliance with organizational standards.

Prepare and Load Materials

To be competent, the user/individual on the job must be able to:

PC5. Inspect and verify the quality, type, and batch of material (filament, resin, or metal powder) as per job order.

PC6. Prepare and condition materials (drying, filtering, sieving, or degassing) to meet process requirements.

PC7. Load the material correctly into the machine as per manufacturer's guidelines, ensuring contamination-free handling.

Configure Process Parameters and Build Setup

To be competent, the user/individual on the job must be able to:

PC8. Generate slicing files using suitable software and define layer thickness, orientation, and support structure.

PC9. Optimize slicing and build parameters to reduce build time, improve surface finish, and minimize material waste.

PC10. erify alignment, calibration, and machine readiness before initiating the build.

Execute and Monitor Additive Manufacturing Process

To be competent, the user/individual on the job must be able to:

PC11. Start the build process following approved work instructions and monitor initial layers for adhesion quality.

PC12. Monitor process parameters (temperature, laser power, feed rate, gas flow, etc.) during the build cycle.

PC13. Identify process deviations or abnormalities and perform corrective actions within authorized limits.

PC14. Record real-time process data and maintain build logs for traceability.

Post-processing and Inspection

To be competent, the user/individual on the job must be able to:

PC15. Perform necessary post-processing operations such as depowdering, support removal, heat treatment, machining, or surface finishing.

PC16. Inspect the final part for dimensional accuracy, surface quality, and defects as per quality standards.

PC17. Segregate non-conforming parts and report defects to relevant authorities for corrective action.

Optimize and Document Process Performance

To be competent, the user/individual on the job must be able to:

PC18. Analyze build data and inspection results to identify opportunities for process improvement.

PC19. Implement optimization measures such as revised parameters, build orientation changes, or material usage improvements.

PC20. Document all process parameters, changes, and improvements for future reference and standardization.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Company policies, work instructions, and safety procedures related to additive manufacturing.

KU2. Quality standards and inspection criteria.

KU3. Documentation and reporting procedures.

KU4. Environmental and health regulations for powder/resin handling.

KU5. Data security and digital file management norms.

KU6. Principles and types of additive manufacturing technologies.

KU7. Process parameters affecting build quality (temperature, speed, layer height, etc.).

KU8. Materials and their compatibility with different processes.

KU9. Slicing and orientation optimization techniques.

KU10. Post-processing techniques for different materials.

KU11. Troubleshooting methods for common process defects.

KU12. In-process monitoring and data analysis tools.

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. Read and interpret 2D/3D technical drawings and job documentation.

GS2. Communicate effectively with team members and supervisors.

GS3. Use digital tools and AM software efficiently.
GS4. Maintain accurate records and reports
GS5. Identify and resolve basic process-related problems logically.
GS6. Follow safe working practices and maintain a clean workspace.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for Additive Manufacturing Process Setup	5	5	-	5
PC1. Identify job requirements, part geometry, and customer specifications from design/CAD files.	-	-	-	-
PC2. Select the appropriate additive manufacturing process based on material, resolution, and functional needs.	-	-	-	-
PC3. Verify availability and calibration of required tools, equipment, and consumables.	-	-	-	-
PC4. Check environmental and safety conditions of the work area, ensuring compliance with organizational standards.	-	-	-	-
Prepare and Load Materials	5	5	-	5
PC5. Inspect and verify the quality, type, and batch of material (filament, resin, or metal powder) as per job order.	-	-	-	-
PC6. Prepare and condition materials (drying, filtering, sieving, or degassing) to meet process requirements.	-	-	-	-
PC7. Load the material correctly into the machine as per manufacturer's guidelines, ensuring contamination-free handling.	-	-	-	-
Configure Process Parameters and Build Setup	5	5	-	5
PC8. Generate slicing files using suitable software and define layer thickness, orientation, and support structure.	-	-	-	-
PC9. Optimize slicing and build parameters to reduce build time, improve surface finish, and minimize material waste.	-	-	-	-
PC10. erify alignment, calibration, and machine readiness before initiating the build.	-	-	-	-
Execute and Monitor Additive Manufacturing Process	10	10	-	5

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. Start the build process following approved work instructions and monitor initial layers for adhesion quality.	-	-	-	-
PC12. Monitor process parameters (temperature, laser power, feed rate, gas flow, etc.) during the build cycle.	-	-	-	-
PC13. Identify process deviations or abnormalities and perform corrective actions within authorized limits.	-	-	-	-
PC14. Record real-time process data and maintain build logs for traceability.	-	-	-	-
Post-processing and Inspection	**5**	**5**	**-**	**5**
PC15. Perform necessary post-processing operations such as depowdering, support removal, heat treatment, machining, or surface finishing.	-	-	-	-
PC16. Inspect the final part for dimensional accuracy, surface quality, and defects as per quality standards.	-	-	-	-
PC17. Segregate non-conforming parts and report defects to relevant authorities for corrective action.	-	-	-	-
Optimize and Document Process Performance	**5**	**5**	**-**	**5**
PC18. Analyze build data and inspection results to identify opportunities for process improvement.	-	-	-	-
PC19. Implement optimization measures such as revised parameters, build orientation changes, or material usage improvements.	-	-	-	-
PC20. Document all process parameters, changes, and improvements for future reference and standardization.	-	-	-	-
NOS Total	**35**	**35**	**-**	**30**

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N0533
NOS Name	Set up and optimize additive manufacturing Processes.
Sector	Capital Goods
Sub-Sector	
Occupation	Service, Service
NSQF Level	6
Credits	5
Version	1.0
Last Reviewed Date	01/10/2025
Next Review Date	01/10/2030
NSQC Clearance Date	01/10/2025

CSC/N1339: Collaboratively coordinate with the team

Description

This OS unit is about building relationships and working with people and groups inside and outside the organization, using skills and habits, to achieve the team goals and objectives

Scope

The scope covers the following :

- This unit/task covers the following:
- Creating team environment
- Communicating - giving and receiving
- Working cooperatively
- Participating in team decision making
- Demonstrating Sense of Responsibility
- Showing respect for opinions, customs, and preferences

Elements and Performance Criteria

Communicate effectively at the workplace

To be competent, the user/individual on the job must be able to:

PC1. exchange information and instruction with colleagues, and seek clarifications and feedback

PC2. assist colleagues where required

PC3. follow business communication etiquette in all interactions and communicative formats (online, digital, and in-person)

PC4. document and share all relevant information with stakeholders in agreed formats and as per agreed timelines

Work effectively

To be competent, the user/individual on the job must be able to:

PC5. identify and obtain clarity regarding organisational, team and own goals and targets

PC6. prioritise and plan work in order to achieve goals and targets

PC7. monitor own and team performance as per agreed plan

PC8. complete duties accurately, systematically and within required timeframes

PC9. express emotions appropriately at the workplace and manage own response to heightened emotions

PC10. maintain orderliness and cleanliness in the work area Maintain and enhance professional competence

PC11. identify own strengths and weaknesses in relation to goals and targets

PC12. adapt self, service, or product to meet success criteria

PC13. seek and select opportunities for continuous professional development

PC14. formulate a professional development plan to enhance capabilities

PC15. build or contribute to the organizational knowledge base of cases, clients, issues, solutions, and innovations

PC16. examine developments and trends in field of work and their potential impact on work

PC17. take feedback from peers, supervisors and clients to improve own performance and practices

Work in a disciplined and ethical manner

To be competent, the user/individual on the job must be able to:

PC18. perform tasks as per workplace standards, organizational policies and legislative requirements

PC19. display appropriate professional appearance at the workplace and adhere to the organizational dress code

PC20. demonstrate responsible and disciplined behavior at the workplace such as punctuality; completing tasks as per given time and standards; demonstrating professional behavior at all times, adopting environment- friendly practices, etc.

PC21. identify the cause of conflict and options for resolution with peers or escalate grievances and problems to appropriate authority as per procedure for conflict resolution

PC22. protect the rights of the client and organization when delivering services

PC23. ensure services are delivered equally to all clients regardless of personal and cultural beliefs

PC24. operate within an agreed ethical code of practice and report unethical conduct to the appropriate authorities

PC25. follow organizational guidelines and legal requirements on disclosure and confidentiality

Uphold social diversity at the workplace

To be competent, the user/individual on the job must be able to:

PC26. recognize and evaluate biased practices against underrepresented groups like women and persons with disabilities, in workplace systems and processes

PC27. identify and report discrimination and harassment based on gender, disability, or cultural difference at the workplace

PC28. use inclusive or neutral language and gestures in all interactions

PC29. respect the personal and professional space of others

PC30. access grievance redressal mechanisms as per legislations

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the organisation's policies and procedures for working with colleagues, roles and responsibilities

KU2. the importance of effective communication and establishing good working relationships with colleagues

KU3. different methods of communication and the circumstances in which it is appropriate to use these

KU4. the importance of creating an environment of trust and mutual respect

KU5. the implications of own work on the work and schedule of others

KU6. different types of information that colleagues might need and the importance of providing this information when it is required

KU7. the importance of helping colleagues with problems, to meet quality and time standards as a team

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read and write instructions, guidelines, procedures, messages, emails, and other media in language of the workplace
GS2. communicate in common and technical terms in language of the workplace
GS3. listen effectively and orally communicate information
GS4. be punctual, do work scheduling and reporting
GS5. comply with workplace practices and ethics
GS6. maintain cleanliness and healthy environment
GS7. be customer friendly - understand real needs of the customer and suggest most appropriate solution
GS8. be safety conscious and avoid risk
GS9. be observant, vigilant, and security consciousness
GS10. respond, handle problem, and escalate as necessary
GS11. ask for clarification and advice from concerned persons
GS12. make decisions on a suitable course of action or response keeping in view resource utilization while meeting commitments
GS13. plan and organize work to achieve targets and deadlines

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Communicate effectively at the workplace	7	20	-	-
PC1. exchange information and instruction with colleagues, and seek clarifications and feedback	-	-	-	-
PC2. assist colleagues where required	-	-	-	-
PC3. follow business communication etiquette in all interactions and communicative formats (online, digital, and in-person)	-	-	-	-
PC4. document and share all relevant information with stakeholders in agreed formats and as per agreed timelines	-	-	-	-
Work effectively	7	20	-	-
PC5. identify and obtain clarity regarding organisational, team and own goals and targets	-	-	-	-
PC6. prioritise and plan work in order to achieve goals and targets	-	-	-	-
PC7. monitor own and team performance as per agreed plan	-	-	-	-
PC8. complete duties accurately, systematically and within required timeframes	-	-	-	-
PC9. express emotions appropriately at the workplace and manage own response to heightened emotions	-	-	-	-
PC10. maintain orderliness and cleanliness in the work area Maintain and enhance professional competence	-	-	-	-
PC11. identify own strengths and weaknesses in relation to goals and targets	-	-	-	-
PC12. adapt self, service, or product to meet success criteria	-	-	-	-
PC13. seek and select opportunities for continuous professional development	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. formulate a professional development plan to enhance capabilities	-	-	-	-
PC15. build or contribute to the organizational knowledge base of cases, clients, issues, solutions, and innovations	-	-	-	-
PC16. examine developments and trends in field of work and their potential impact on work	-	-	-	-
PC17. take feedback from peers, supervisors and clients to improve own performance and practices	-	-	-	-
Work in a disciplined and ethical manner	8	20	-	-
PC18. perform tasks as per workplace standards, organizational policies and legislative requirements	-	-	-	-
PC19. display appropriate professional appearance at the workplace and adhere to the organizational dress code	-	-	-	-
PC20. demonstrate responsible and disciplined behavior at the workplace such as punctuality; completing tasks as per given time and standards; demonstrating professional behavior at all times, adopting environment- friendly practices, etc.	-	-	-	-
PC21. identify the cause of conflict and options for resolution with peers or escalate grievances and problems to appropriate authority as per procedure for conflict resolution	-	-	-	-
PC22. protect the rights of the client and organization when delivering services	-	-	-	-
PC23. ensure services are delivered equally to all clients regardless of personal and cultural beliefs	-	-	-	-
PC24. operate within an agreed ethical code of practice and report unethical conduct to the appropriate authorities	-	-	-	-
PC25. follow organizational guidelines and legal requirements on disclosure and confidentiality	-	-	-	-
Uphold social diversity at the workplace	8	10	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. recognize and evaluate biased practices against underrepresented groups like women and persons with disabilities, in workplace systems and processes	-	-	-	-
PC27. identify and report discrimination and harassment based on gender, disability, or cultural difference at the workplace	-	-	-	-
PC28. use inclusive or neutral language and gestures in all interactions	-	-	-	-
PC29. respect the personal and professional space of others	-	-	-	-
PC30. access grievance redressal mechanisms as per legislations	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N1339
NOS Name	Collaboratively coordinate with the team
Sector	Capital Goods
Sub-Sector	Generic
Occupation	Generic
NSQF Level	5
Credits	3
Version	1.0
Last Reviewed Date	01/10/2025
Next Review Date	01/10/2030
NSQC Clearance Date	01/10/2025

DGT/VSQ/N0102: Employability Skills (60 Hours)

Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Career Development & Goal Setting
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

Elements and Performance Criteria

Introduction to Employability Skills

To be competent, the user/individual on the job must be able to:

PC1. identify employability skills required for jobs in various industries

PC2. identify and explore learning and employability portals

Constitutional values - Citizenship

To be competent, the user/individual on the job must be able to:

PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.

PC4. follow environmentally sustainable practices

Becoming a Professional in the 21st Century

To be competent, the user/individual on the job must be able to:

PC5. recognize the significance of 21st Century Skills for employment

PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

Basic English Skills

To be competent, the user/individual on the job must be able to:

PC7. use basic English for everyday conversation in different contexts, in person and over the telephone

PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English

PC9. write short messages, notes, letters, e-mails etc. in English

Career Development & Goal Setting

To be competent, the user/individual on the job must be able to:

PC10. understand the difference between job and career

PC11. prepare a career development plan with short- and long-term goals, based on aptitude

Communication Skills

To be competent, the user/individual on the job must be able to:

PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings

PC13. work collaboratively with others in a team

Diversity & Inclusion

To be competent, the user/individual on the job must be able to:

PC14. communicate and behave appropriately with all genders and PwD

PC15. escalate any issues related to sexual harassment at workplace according to POSH Act

Financial and Legal Literacy

To be competent, the user/individual on the job must be able to:

PC16. select financial institutions, products and services as per requirement

PC17. carry out offline and online financial transactions, safely and securely

PC18. identify common components of salary and compute income, expenses, taxes, investments etc

PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation

Essential Digital Skills

To be competent, the user/individual on the job must be able to:

PC20. operate digital devices and carry out basic internet operations securely and safely

PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively

PC22. use basic features of word processor, spreadsheets, and presentations

Entrepreneurship

To be competent, the user/individual on the job must be able to:

PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research

PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion

PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

Customer Service

To be competent, the user/individual on the job must be able to:

PC26. identify different types of customers

PC27. identify and respond to customer requests and needs in a professional manner.

PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

To be competent, the user/individual on the job must be able to:

PC29. create a professional Curriculum vitae (Résumé)

PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively

PC31. apply to identified job openings using offline /online methods as per requirement

PC32. answer questions politely, with clarity and confidence, during recruitment and selection

PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills and different learning and employability related portals

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

KU4. Twenty first (21st) century skills and their importance

KU5. how to use English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up

KU6. importance of career development and setting long- and short-term goals

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

KU10. different types of financial institutes, products, and services

KU11. how to compute income and expenditure

KU12. importance of maintaining safety and security in offline and online financial transactions

KU13. different legal rights and laws

KU14. different types of digital devices and the procedure to operate them safely and securely

KU15. how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.

KU16. how to identify business opportunities

KU17. types and needs of customers

KU18. how to apply for a job and prepare for an interview

KU19. apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read and write different types of documents/instructions/correspondence

GS2. communicate effectively using appropriate language in formal and informal settings

GS3. behave politely and appropriately with all
GS4. how to work in a virtual mode
GS5. perform calculations efficiently
GS6. solve problems effectively
GS7. pay attention to details
GS8. manage time efficiently
GS9. maintain hygiene and sanitization to avoid infection

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	1	1	-	-
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
Constitutional values - Citizenship	1	1	-	-
PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
PC4. follow environmentally sustainable practices	-	-	-	-
Becoming a Professional in the 21st Century	2	4	-	-
PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-
PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
Basic English Skills	2	3	-	-
PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
Career Development & Goal Setting	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. understand the difference between job and career	-	-	-	-
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
Communication Skills	2	2	-	-
PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
PC13. work collaboratively with others in a team	-	-	-	-
Diversity & Inclusion	1	2	-	-
PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
Financial and Legal Literacy	2	3	-	-
PC16. select financial institutions, products and services as per requirement	-	-	-	-
PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
Essential Digital Skills	3	4	-	-
PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Entrepreneurship	2	3	-	-
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
Customer Service	1	2	-	-
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
PC28. follow appropriate hygiene and grooming standards	-	-	-	-
Getting ready for apprenticeship & Jobs	2	3	-	-
PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
PC31. apply to identified job openings using offline /online methods as per requirement	-	-	-	-
PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
NOS Total	**20**	**30**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0102
NOS Name	Employability Skills (60 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

CSC/N0505: Follow health, safety and environment guidelines at workplace

Description

This OS unit is about following adequate safety procedures to make work environment healthy and safe

Scope

The scope covers the following :

- This unit/task covers the following:
- Adhere to standard safety procedures of the company
- Follow healthy practices and posture
- Practice waste management and recycling
- Conserve material and resources

Elements and Performance Criteria

Adhere to standard safety procedures of the organisation

To be competent, the user/individual on the job must be able to:

PC1. comply with general safety procedures and those for handling equipment, tools, chemicals, and hazardous material, as prescribed and followed in the organisation

PC2. remove finger rings or any other metal objects likely to interfere with the work

PC3. ensure that identification badge or any other object worn around the neck or on the clothing does not get caught in any rotating machine, or otherwise interfere with the work

PC4. use appropriate safety devices such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, helmets etc. recommended for the work being performed

PC5. inform, escalate, or raise alarm about any suspicions, unaccounted hazardous material, devices, or other objects found in the premises

PC6. inform, escalate, or raise alarm about any breach of safety or security procedure in the organisation

PC7. help achieve zero accidents goals at work

PC8. avoid damage to sensitive electronic components due to negligence of ESD procedures

PC9. participate regularly in fire drills or other safety related workshops organised by the organisation

PC10. follow strictly all access control and perimeter safety procedures in designated factory areas such as robotic work stations, automated production lines, automated material movement and other potentially risky operations

PC11. ensure that other people follow all access control and perimeter safety procedures in designated factory areas and help avoid accidents

PC12. use emergency switches or other mechanisms of stopping a machine immediately in case any emergency situation has developed or about to happen

PC13. ensure that electrical equipment are properly grounded

PC14. follow Cyber Security guidelines and be vigilant at workplace

PC15. proceed to designated safe assembly area immediately on hearing fire alarm

Follow healthy practices and posture

To be competent, the user/individual on the job must be able to:

PC16. wash hands and use sanitizers as recommended to prevent spread of diseases

PC17. follow common personal hygiene practices

PC18. maintain appropriate posture, especially in long hours of sitting or standing position and in handling heavy materials

PC19. participate in company organised health sessions such as exercises, games, yoga, physiotherapy, and other activities

PC20. handle heavy and hazardous materials with care, while maintaining appropriate posture, using suitable tools, and handling equipment such as trolleys, jacks, and ladders

PC21. learn and apply first aid devices available in the workplace

PC22. learn and apply safety and handling procedures for electrical shock and electrocution

PC23. learn and apply emergency medical help services

PC24. follow workplace decorum and avoid emotional outbursts or inappropriate language

PC25. prevent any harassment at workplace

Practice waste management and recycling

To be competent, the user/individual on the job must be able to:

PC26. identify recyclable, non-recyclable, and hazardous waste generated in the workplace and comply with their disposal procedures

PC27. dispose non-recyclable waste and hazardous waste following recommended processes

PC28. deposit recyclable and reusable material at identified locations

PC29. support education and compliance of waste management processes

Conserve material and resources

To be competent, the user/individual on the job must be able to:

PC30. identify ways to optimize usage of material and resources such as water, electricity, energy in various tasks, activities, and processes

PC31. check for spills and leakages of material in various tasks, activities, and processes and plug them

PC32. escalate the leakage issue to appropriate authority if needed

PC33. carry out routine cleaning of tools, machines, and equipment and maintain them in good working condition to optimize efficiency and wastage

PC34. check if the equipment is functioning normally before commencing work and rectify or report any malfunctioning to the responsible agency

PC35. check for any odour, sparks, fumes, emission, unusual vibration, noise, or any other objectionable presence in the environment and take immediate corrective action followed by report to responsible agency

PC36. ensure electrical equipment are properly connected for use and are switched off when not in use

PC37. support education and compliance of resource conservation processes

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. company policies on workplace, environment, and personnel management
KU2. company policy on occupational safety and health
KU3. professional hazards related to nature of work and how to deal with them
KU4. how to maintain the work area safe and secure
KU5. how to handle hazardous materials, tools, and equipment
KU6. emergency procedures for fire, electrocution, physical injury, wounds, etc.
KU7. need for proper body posture and use of appropriate handling equipment
KU8. understand electrical grounding practices
KU9. common sources of pollution and ways to minimize it
KU10. waste management - categorisation, colour coding, handling, and disposal procedure
KU11. organisation policies and procedures for minimizing waste
KU12. efficient use of electricity, material, and water in processes
KU13. organization policies regarding network usage and security
KU14. norms for professional behaviour at workplace and dealing with deviations

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. communicating in the language of the workplace
GS2. reading and interpreting documents, drawings, symbols, and instructions
GS3. operating computer and common office equipment and diagnosing common electrical and interconnection problems
GS4. writing notes, reports, observations, emails
GS5. using personnel protective devices
GS6. maintaining clean and healthy work environment
GS7. using and operating safety devices and equipment
GS8. conducting work following workplace security processes and rules
GS9. responding to emergency situations pertaining to workplace
GS10. understanding people and collaborating to create a healthy workplace

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Adhere to standard safety procedures of the organisation	7	10	-	-
PC1. comply with general safety procedures and those for handling equipment, tools, chemicals, and hazardous material, as prescribed and followed in the organisation	-	-	-	-
PC2. remove finger rings or any other metal objects likely to interfere with the work	-	-	-	-
PC3. ensure that identification badge or any other object worn around the neck or on the clothing does not get caught in any rotating machine, or otherwise interfere with the work	-	-	-	-
PC4. use appropriate safety devices such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, helmets etc. recommended for the work being performed	-	-	-	-
PC5. inform, escalate, or raise alarm about any suspicions, unaccounted hazardous material, devices, or other objects found in the premises	-	-	-	-
PC6. inform, escalate, or raise alarm about any breach of safety or security procedure in the organisation	-	-	-	-
PC7. help achieve zero accidents goals at work	-	-	-	-
PC8. avoid damage to sensitive electronic components due to negligence of ESD procedures	-	-	-	-
PC9. participate regularly in fire drills or other safety related workshops organised by the organisation	-	-	-	-
PC10. follow strictly all access control and perimeter safety procedures in designated factory areas such as robotic work stations, automated production lines, automated material movement and other potentially risky operations	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. ensure that other people follow all access control and perimeter safety procedures in designated factory areas and help avoid accidents	-	-	-	-
PC12. use emergency switches or other mechanisms of stopping a machine immediately in case any emergency situation has developed or about to happen	-	-	-	-
PC13. ensure that electrical equipment are properly grounded	-	-	-	-
PC14. follow Cyber Security guidelines and be vigilant at workplace	-	-	-	-
PC15. proceed to designated safe assembly area immediately on hearing fire alarm	-	-	-	-
Follow healthy practices and posture	8	10	-	-
PC16. wash hands and use sanitizers as recommended to prevent spread of diseases	-	-	-	-
PC17. follow common personal hygiene practices	-	-	-	-
PC18. maintain appropriate posture, especially in long hours of sitting or standing position and in handling heavy materials	-	-	-	-
PC19. participate in company organised health sessions such as exercises, games, yoga, physiotherapy, and other activities	-	-	-	-
PC20. handle heavy and hazardous materials with care, while maintaining appropriate posture, using suitable tools, and handling equipment such as trolleys, jacks, and ladders	-	-	-	-
PC21. learn and apply first aid devices available in the workplace	-	-	-	-
PC22. learn and apply safety and handling procedures for electrical shock and electrocution	-	-	-	-
PC23. learn and apply emergency medical help services	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC24. follow workplace decorum and avoid emotional outbursts or inappropriate language	-	-	-	-
PC25. prevent any harassment at workplace	-	-	-	-
Practice waste management and recycling	-	-	-	-
PC26. identify recyclable, non-recyclable, and hazardous waste generated in the workplace and comply with their disposal procedures	-	-	-	-
PC27. dispose non-recyclable waste and hazardous waste following recommended processes	-	-	-	-
PC28. deposit recyclable and reusable material at identified locations	-	-	-	-
PC29. support education and compliance of waste management processes	-	-	-	-
Conserve material and resources	-	-	-	-
PC30. identify ways to optimize usage of material and resources such as water, electricity, energy in various tasks, activities, and processes	-	-	-	-
PC31. check for spills and leakages of material in various tasks, activities, and processes and plug them	-	-	-	-
PC32. escalate the leakage issue to appropriate authority if needed	-	-	-	-
PC33. carry out routine cleaning of tools, machines, and equipment and maintain them in good working condition to optimize efficiency and wastage	-	-	-	-
PC34. check if the equipment is functioning normally before commencing work and rectify or report any malfunctioning to the responsible agency	-	-	-	-
PC35. check for any odour, sparks, fumes, emission, unusual vibration, noise, or any other objectionable presence in the environment and take immediate corrective action followed by report to responsible agency	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC36. ensure electrical equipment are properly connected for use and are switched off when not in use	-	-	-	-
PC37. support education and compliance of resource conservation processes	-	-	-	-
NOS Total	**15**	**20**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N0505
NOS Name	Follow health, safety and environment guidelines at workplace
Sector	Capital Goods
Sub-Sector	Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Defence Equipment, Fire-Fighting & Safety Equipment, Homeland Security
Occupation	Service
NSQF Level	5
Credits	1
Version	1.0
Last Reviewed Date	01/10/2025
Next Review Date	01/10/2030
NSQC Clearance Date	01/10/2025

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.

2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.

3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below).

4. Individual assessment agencies will create unique evaluations for skill practical for every student at

each examination/ training centre based on these criteria.

5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.

6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

Minimum Aggregate Passing % at QP Level : 70

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Minimum Aggregate Passing % at QP Level : 70

(**Please note**: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
CSC/N0482.Develop and implement Direct Hybrid Additive Manufacturing (DHAM) plans for Complex Prototype Development.	25	50	0	25	100	20
CSC/N0481.Designing parts optimised for the additive Process	35	35	0	30	100	20
CSC/N0533.Set up and optimize additive manufacturing Processes.	35	35	0	30	100	20
CSC/N1339.Collaboratively coordinate with the team	30	70	-	-	100	10

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	15
CSC/N0505.Follow health, safety and environment guidelines at workplace	15	20	-	-	35	15
Total	**160**	**240**	**-**	**85**	**485**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.